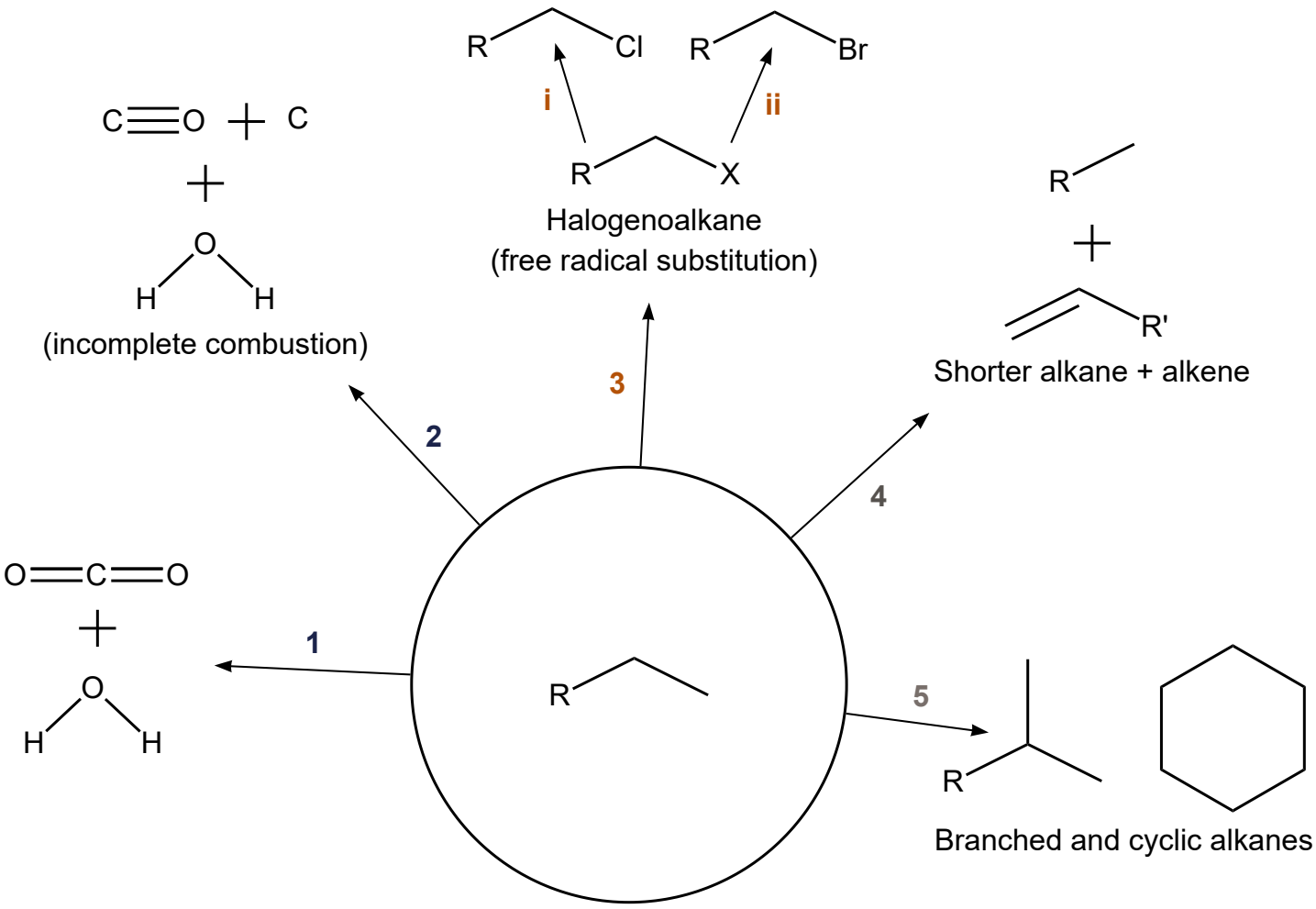
Alkanes Map

Edexcel International A Level Chemistry · Unit 1 · Topic 4



1 combustion: excess O_2(g), burn (complete combustion)

2 combustion (incomplete): limited O_2(g), burn; CO is toxic, C forms soot (particulates)

3 substitution (free radical): UV light
i Cl_2
ii Br_2

4 cracking: long-chain alkane, heat with a catalyst (e.g. zeolite or Al_2O_3)

5 reforming: straight-chain alkane, heat with a catalyst (e.g. Pt)

Free radical substitution gives a mixture of products (further substitution), so it has limited use in synthesis.
Mechanism: initiation (UV splits X_2 into 2 X•), propagation, termination.
Combustion also emits NOx and SO_2 (acidic) and unburned hydrocarbons.

combustion **substitution** **cracking** **reforming**

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